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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant: Chengua O. Han § Art Unit: 3641  
Serial No.: 10/027,727 §  
Filed: December 21, 2001 § Examiner: Peter A. Nelson  
Title: PRE-FRAGMENTED § Docket No. 22.1450  
SHAPED CHARGE § (SHL.227US)

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

REPLY TO OFFICE ACTION DATED MARCH 24, 2003

Dear Sir:

In an Office Action mailed on March 24, 2003, an objection was made to the disclosure; claims 1, 3-6, 8-14 and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Walters; claims 7 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walters in view of Rheinmetall; and claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walters in view of either Rheinmetall reference. The objection and rejections are discussed below in the corresponding sections.

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Janice Munoz	

Janice Munoz

Objection to the Disclosure:

The Examiner objects to the disclosure due to the use of the term "pre-fragmented," as the Examiner contends that this term is misdescriptive. More specifically, the Examiner reasons, "if the arrangement is indeed pre-fragmented, then it is in pieces." Final Office Action, 2.

Applicant notes that the term "fragmented" generally means "in pieces." However, the term "fragmented" is not used in the claims and the description. Rather, the term "pre-fragmented" is used in the disclosure and in the claims, and this term has a different meaning than "fragmented." More particularly, the modifier "pre" means "before," and therefore, the term "pre-fragmented" implies a configuration before fragmentation, i.e., before the material is "in pieces."

The patentee may be his own lexicographer. Turning to the specification, the term "pre-fragmented" is used in the specification to describe a shaped charge that includes a casing that includes grooves to condition the shaped charge (and casing) for fragmentation. For example, in the description of Figure 4, the specification states, "Figure 4 illustrates one embodiment of the pre-fragmented shaped charge, indicated generally as 40." Specification, p. 3, ll. 22-23. The specification also states, "slots, or grooves, 42 are cut into the charge case 44 to weaken the case 44 according to a certain pattern or design." *Id.*, p.3., ll. 23-24 As can be seen from Figure 4, neither the charge 40 nor its casing 44 are in separate pieces, but rather, the casing 44 contains grooves 42 to condition the charge 40 for fragmentation.

Thus, it is submitted that the term "pre-fragmented" in both the claims and the disclosure is not misdescriptive, but rather, this term generally refers to a shaped charge that is conditioned to some extent for fragmentation. This meaning of "pre-fragmented" is clear from the ordinary meanings of "pre" and "fragmented," and this meaning of "pre-fragmented" is clear from the use of "pre-fragmented" in the specification. Therefore, withdrawal of the objection to the disclosure is requested.

Rejections of Claims 1 and 3-8:

The system of independent claim 1 includes a pre-fragmented shaped charge that has a charge case and an explosive material. The charge case defines at least one slot about which the charge case is adapted to fracture.

The Examiner rejects independent claim 1 under 35 U.S.C. § 102(b) in view of Walters. However, the Examiner does not clarify which "Walters" reference is being applied, i.e., the Examiner does not clarify whether the § 102 rejection of claim 1 is in view of U.S. Patent No. 5,320,044 ("herein called the '044 patent") or whether § 102 rejection of claim 1 is in view of U.S. Patent No. 4,510,870 ("herein called the '870 patent"). Regardless of which Walters reference is being applied, claim 1 is not anticipated by either reference for the reasons set forth above.

The '044 patent discusses a particular liner design for producing multiple perforation jets. More specifically, Figure 1 depicts a cross-section of a warhead that includes a liner 10 that is encased in a body 20. '044 patent, 2:15-19. However, the '044 patent neither teaches nor suggests a slot in the body 20 about which the body 20 is adapted to fracture. Thus, the '044 patent discloses forming specific profiles in a *liner* not a *charge case*. Therefore, for at least these reasons, the '044 patent fails to anticipate claim 1.

Similarly, the '870 patent fails to anticipate claim 1. More specifically, the '870 patent is directed to holes that are formed in a liner for purposes of reducing a velocity gradient of a perforation jet. More particularly, the '870 patent discloses an explosive device 10 that includes a casing 12 and a charge liner 14. '870 patent, 3:22-28. However, the '870 patent is directed to forming holes in the *liner* 14, and does not teach or suggest defining at least one slot in a *charge case*. Thus, for at least these reasons, the '870 patent fails to anticipate claim 1.

Therefore, claim 1 not anticipated by either Walters reference. Claims 3-8 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 9-11:

The Examiner rejects independent claim 9 under 35 U.S.C. § 102(b) as being anticipated by Walters. It is unclear from the Office Action whether "Walters" means the '044 patent or the '870 patent. However, neither of these references teaches or suggests providing a pre-fragmented shaped charge that has a charge case that defines a plurality of grooves about which the charge case is adapted to fracture. Instead, the '870 and '044 patents are each directed forming certain characteristics in *a liner*, not defining a slot or slots in a *charge case*. Therefore, for at least these reasons, claim 9 overcomes the § 102 rejection in view of Walters.

Claims 10 and 11 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 12-16:

Independent claim 12 was rejected under 35 U.S.C. § 102(b) as being anticipated by Walters. However, neither the '870 patent nor the '044 patent teaches or suggests machining a plurality of slots in a case about which the case is adapted to fracture. It is noted that in addition to citing machining a plurality of slots in a case, claim 12 also recites inserting a liner over a main body of explosives. The '044 and '870 patents disclose modifying a liner for purposes of controlling a perforation jet velocity and multiple perforation jets. However, neither reference teaches or suggests machining a plurality of slots in a case about which the case is adapted to fracture.

Therefore, for at least these reasons, Walters does not anticipate claim 12. Claims 13-16 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 17-20:

Claim 17 was rejected under 35 U.S.C § 103(a) as being unpatentable over Walters in view of either Rheinmetall reference.

As discussed above, neither the '870 patent nor the '044 patent teaches or suggests a pre-fragmented shape charge including a charge case that defines at least one slot about which the

charge case is adapted to fracture. Furthermore, neither Rheinmetall reference teaches forming such a slot in a charge case, as both of these references are directed to forming grooves in an inner shell, not a charge case. Thus, for at least the reason that the cited art fails to teach all claim limitations, a *prima facie* case of obviousness has not been established for independent claim 17. M.P.E.P. § 2143.

The Examiner fails to establish a *prima facie* case of obviousness for independent claim 17 for at least the additional, independent reason that the Examiner fails to provide any support for the alleged suggestion or motivation for the combination, as the Examiner merely concludes, "it would be obvious to use a plurality of these in a perforating string arrangement." Final Office Action, 3. However, this unsupported conclusion is not sufficient to establish a *prima facie* case of obviousness. Rather, the Examiner must show, with specific citations to the prior art, support for the alleged suggestion or motivation. *Ex parte Gambogi*, 62 USPQ2d 1209, 1212 (Bd. Pat. App. & Int. 2001); *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); M.P.E.P. § 2143. Thus, for at least this additional, independent reason, the Examiner fails to establish a *prima facie* case of obviousness for independent claim 17.

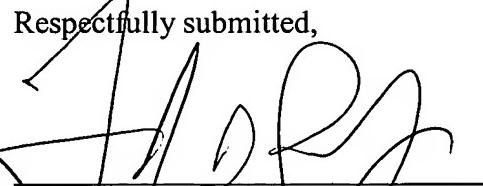
Therefore, claim 17 overcomes the § 103 rejection for at least the reasons that are set forth above. Claims 18-20 are patentable for at least the reason that these claims depend from an allowable claim.

CONCLUSION

In view of the foregoing, withdrawal of the §§ 102 and 103 rejections and a favorable action in the form of a Notice of Allowance are requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (22.1450).

Date: May 14, 2003

Respectfully submitted,

  
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